TRUMPCARD®

THE OSITECH FAMILY OF PC CARDS

User's Guide for the Jack of Hearts

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P/N: 614062-001 Revision 1.1

How To Contact Us

At Ositech Communications Inc., we make every effort to provide our customers with products that fit their needs and work well. If you wish to communicate with Technical Support, Sales or any other department at Ositech, please contact us in one or more of the following ways:

Ositech Communications Inc.
679 Southgate Drive
Guelph, Ontario, Canada
N1G 4S2

Toll Free Telephone:	1-888-OSITECH (1-888-674-8324)
Local Telephone:	(519) 836-8063
Facsimile:	(519) 836-6156

24 HR Bulletin Board Service
(519) 836-1196
[8-N-1, up to 33.6 Kbps]

Internet:	World Wide Web	http://www.ositech.com
	FTP	ftp.ositech.com
	E-Mail	support@ositech.com sales@ositech.com

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user be notified that any changes or modifications made to this device that are not expressly approved by Ositech Communications Inc. may void the user's authority to operate this equipment.

Operating Conditions

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Electromagnetic Compatibility Advisory

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Conseil sur la compatibilité des Electromagnétiques, pour le Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

US Regulations Governing the Use of Modems

This equipment complies with Part 68 of the Federal Communications Commission (FCC) rules for the United States.

A label is located on the back side of the modem containing both the FCC Registration Number and Ringer Equivalent Number (REN). You must upon request, provide this information to your telephone company: **REN 0.6B**.

Should you experience trouble with the telephone equipment, please contact:

M&M Forwarding (1-800-563-2386)
600 Main Street, Tonawanda, New York 14150-0888

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

If trouble is experienced with this equipment, **Jack of Hearts**, for repair or warranty information, please contact **M&M Forwarding 1-800-563-2386**.

If the equipment is causing harm to the telephone network, the telephone company may request that your disconnect the equipment until the problem is resolved.

For repair/warranty information. The telephone company may ask you to disconnect this equipment from the line network until the problem has been corrected.

This equipment cannot be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Your telephone company may discontinue your service if your equipment causes harm to the telephone network. They will notify you in advance of disconnection, if possible. During notification, you will be informed of your right to file a complaint to the FCC.

Occasionally, your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of your equipment. If so, you will be given advance notice of the change to give you an opportunity to maintain uninterrupted service.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send messages unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the

telephone number of the sending machine or such business, other entity, or individual. (The telephone provided may not be a 900 number or any other number for which charges exceed local or long distance transmission charges.)

In order to program this information into your fax machine, you should complete the following steps: **Refer to Fax Software Package**.

These requirements apply to all fax machines and have been extended to all fax modems manufactured on or after 12/13/95.

Industry Canada Warnings

Notice: *The Industry Canada Label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.*

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of the service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: ***Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.***

Notice: *The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Number of all the devices does not exceed 5.*

For information on the location of the authorized Canadian maintenance facility nearest you, contact Ositech Communications Inc.

Cellular Models

Cellular models contain SPECTRUM CONNECTED  cellular data communication technology, which can be activated for data communication over a cellular network when a license is obtained from SPECTRUM, and the product is combined with an appropriate cellular telephone driver and corresponding cable compatible with popular brands of cellular telephones. To obtain a license and to determine the availability of an appropriate driver and cable for a cellular telephone, contact Ositech Communications, Inc.

Non-Cellular Models

This product contains inactivated SPECTRUM CONNECTED™ cellular data communication technology which requires a use licensee from Spectrum Information Technologies, Inc. No such license is provided with this product and activation without a license is prohibited. You automatically obtain a license when you purchase a Direct Connect Cellular Kit from Ositech Communications Inc.

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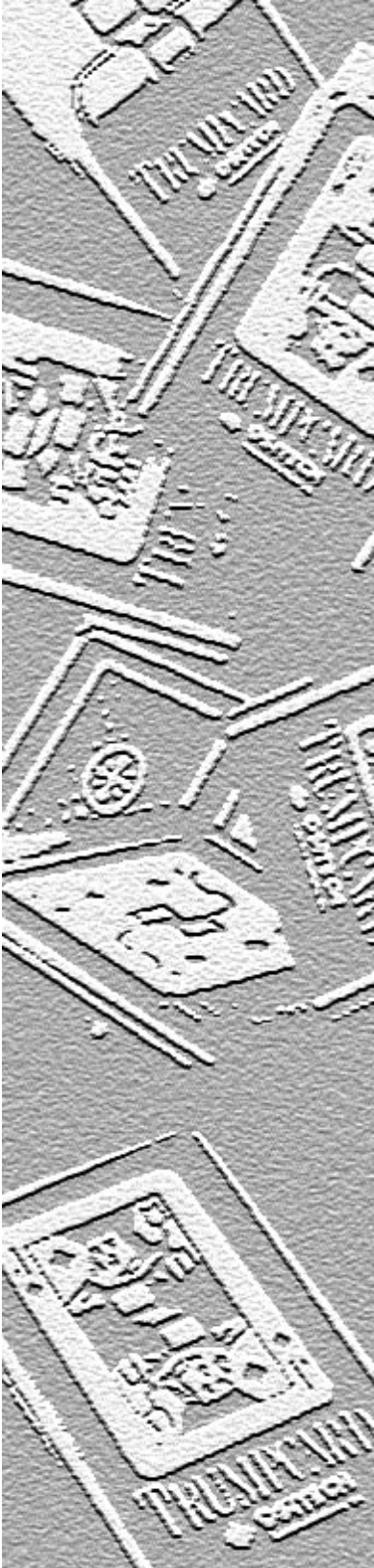
Section One

Introduction



About this Manual

This guide provides installation and operating instructions for the Jack of Hearts, part numbers: TR14456, TR14457, TR14458 and TR14459. The *Jack of Hearts User's Guide* is organized as follows:

- Section One, "Introduction" describes the Jack of Hearts' Ethernet and modem features.
- Section Two, "Installation" explains how to install the Jack of Hearts in your computer and install the software.
- Section Three, "Modem Operations" includes:
  - Connecting the Jack of Hearts to the telephone network.
  - Performing basic modem operations with landline and DPI connections.
  - Configuring the modem settings to work with DPI connections.
  - Modem command reference tables.
  - Modem test procedures.
- Section Four, "Ethernet Operations" includes:
  - Connecting the Jack of Hearts to an Ethernet network using either 10BaseT or 10Base2 connections.
  - Pinout and network specifications, and a description of the Media Access Module.
  - Windows 95 and Windows NT messages.
- Section Five, "References" includes:
  - A troubleshooting guide.
  - A part number list.
  - The Ositech warranty.

Throughout this manual, the term digital telephone system refers to any digital or digital-hybrid telephone system, such as PBX. Windows NT refers to version 4.0. BNC refers to T2, coaxial and thin Ethernet connectors and cables.

Font conventions used in this guide:

- `Courier Regular` refers to any command which you enter using the keyboard.

  For example, Type `ATDT`.

- **`Courier Bold`** denotes file names and illustrates onscreen messages.

  For example, the following message appears:
  `Connection Established!`

The Jack of Hearts is an 10BaseT/2 Ethernet and 33.6Kbps Data+Fax modem PC Card which contains Ositech's Digital Phone Interface (DPI) technology.

Using Ositech's optional Cellular Kit, cellular models of the Jack of Hearts can connect via cellular phones.

Key Features of the Jack of Hearts

The Jack of Hearts offers a number of unique features designed to integrate today's portable and laptop technology with users' needs:

- 10BaseT or 10BaseT/2 connection capabilities.
- All internal Data+Fax V.34 33.6Kbps modem.
- Built-in Digital Phone Interface (DPI) technology allows your Jack of Hearts to connect through digital (PBX) phone systems.
- Windows-based DPI Wizard and DPI Assistant.
- Digital Line Guard.
- Simultaneous network and modem operations.
- Power conservation modes which reduce power consumption when the network or modem feature is not in use.

What is DPI?

Your Jack of Hearts is an analog modem which can connect, using Digital Phone Interface (DPI) Technology, to digital (PBX) phones found in most businesses and hotels. Without access to a standard analog wall jack, the fully internal DPI is an economical way of connecting a TRUMPCARD modem to a digital (PBX) phone system.

DPI is *Not* Digital Line Guard

Unlike Digital Line Guard or digital line protection, DPI allows your modem to connect through digital (PBX) phones. DPI is an *interface.* Digital Line Guard is a *defence*—it protects analog modems from damage caused by the higher currents used by digital phones. Digital Line Guard is not an interface and cannot allow your modem to connect through digital phones.

DPI Configuration

DPI is configured with factory default settings which have been successfully tested with many digital phone systems. In some circumstances, DPI settings might require adjustment to work with a particular digital phone system (refer to the section, “Configuring Your Modem for DPI Connections”, p. 3-13).

Ethernet

The Jack of Hearts Ethernet features support fully the following:

- 10BaseT/2 Ethernet 802.3.
- Data transfer via programmed I/O or memory mapped I/O.
- Category 3, 4 and 5 cables with RJ-45 connectors.

Modem

The Jack of Hearts is a 33.6Kbps Data+Fax modem with Ositech's fully internal Digital Phone Interface (DPI).

Data Mode

The Jack of Hearts supports fully the following industry and ITU-T standards:

- 16550 COM port interface.
- DTE speeds up to 230,400bps.
- Hayes AT command set.
- V.FC, ITU-T V.34 Annex 12 (33,600), ITU-T V.34, V.32bis, V.32, V.22bis, V.22, V.21 and Bell 212A and 103 operations.
- V.42 LAPM, MNP 2-4 error correction protocol.
- V.42bis and MNP 5 data compression.

Fax Mode

The Jack of Hearts fax mode supports Class 1 and Class 2 AT fax commands for fax communications. To use the fax mode, you must use a fax communications software package. The Jack of Hearts supports the following fax standards:

- Fax rates up to 14,400bps, ITU-T V.17, V.29, V.27ter and V.21 channel 2.

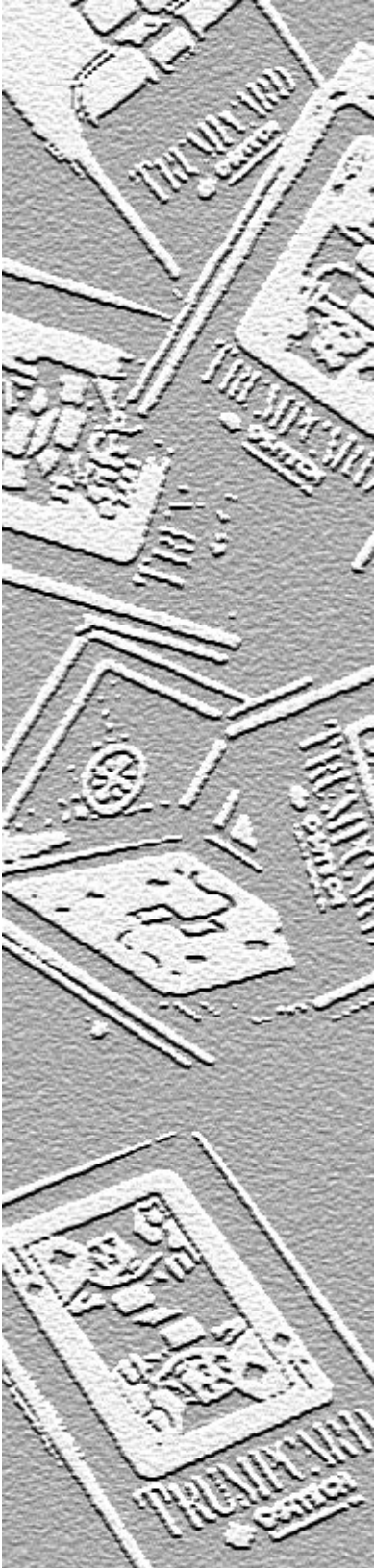
Cellular Mode

The Jack of Hearts cellular models are designed to function with an optional cellular kit which allows the Jack of Hearts to connect to a variety of cellular phones. For an up-to-date list of the cellular phones currently supported please contact Ositech.

The Jack of Hearts Cellular models support MNP 10 EC error correction protocol for cellular communication.

Section Two

Installation



This section covers:

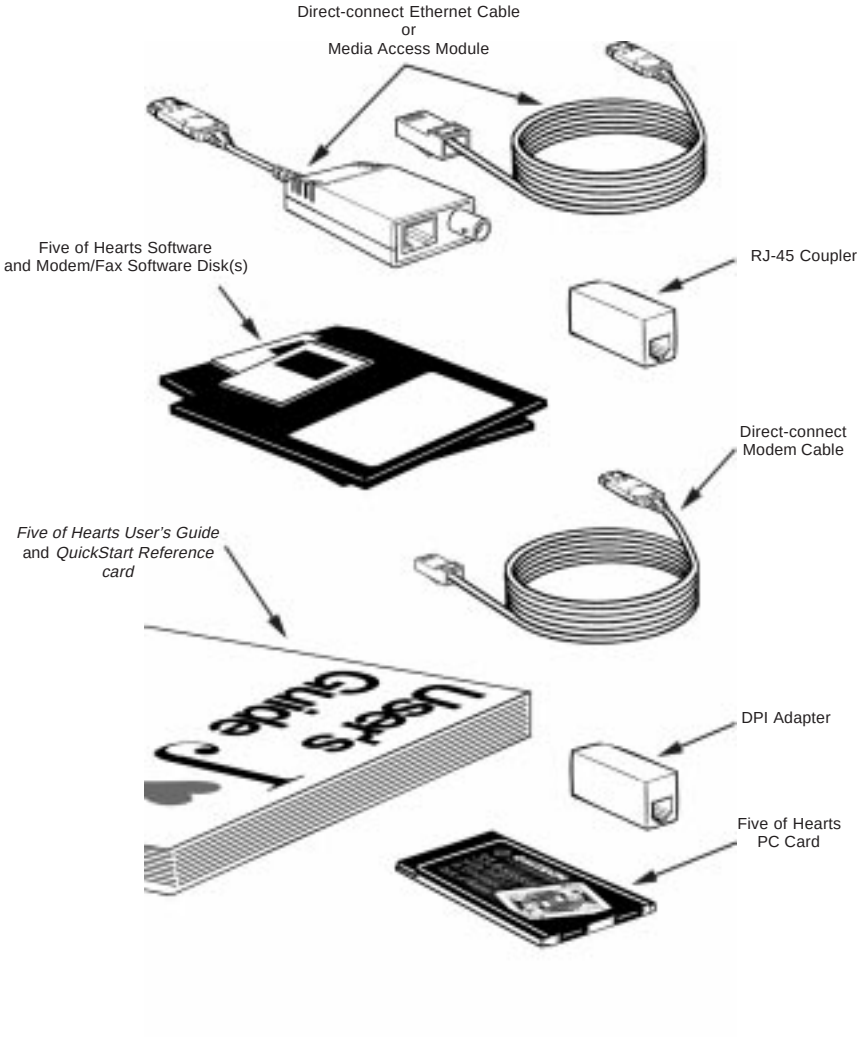
- Unpacking and inspecting the Five of Hearts.
- Installing the Five of Hearts PC Card.
- Installing the software.

Unpacking and Inspecting the Five of Hearts

Carefully inspect the contents of the box (listed below), to verify that everything you should have is included, and that nothing has been damaged during transportation. Retain the packing material in case the unit needs to be returned for service.

Package Contents

- q The Five of Hearts.
- q The *Five of Hearts User's Guide*.
- q The QuickStart reference card.
- q The direct-connect modem cable.
- q The DPI adapter.
- q The software disks.
- q The modem / fax software.



The Five of Hearts package contents.

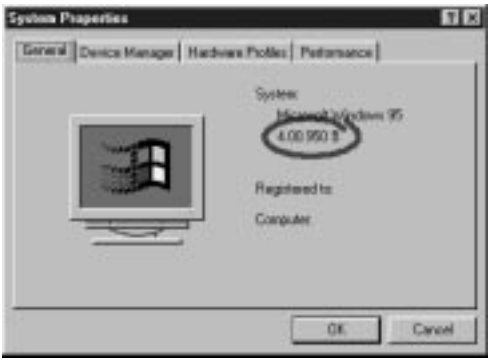
Before You Begin

This section describes how to install the Five of Hearts in a PC Card slot, and how to install the appropriate software in Windows 95 and Windows NT 4.0. For Windows NT 3.51, the steps are similar to the steps for Windows NT 4.0. The screen captures used in this manual are for Windows NT 4.0 and do not reflect Windows NT 3.51 screens.

Before installing the Five of Hearts:

q Determine which one of the following operating systems you are using: Window 95, Windows 95 OSR2 or Windows NT 4.0.

How can you tell the difference between Windows 95 and Windows 95 OSR2? Open the *System Properties* window. If a ***B*** appears after "4.00.950", you are using Windows OSR2.



q Ensure you know the following resource information (in most cases, the default values work):

- A free I/O address
- A free block of memory
- An available interrupt value.

Installing the Five of Hearts PC Card

The Five of Hearts can be inserted into a computer whether the computer's power is ON or OFF. The following are general installation instructions that apply to most computers. Please refer to the documentation accompanying your computer for any additional instructions on installing PC Cards.

To install the Five of Hearts:

1 Orient the Five of Hearts as shown in the figure below.

2 Insert the Five of Hearts into the slot until it is firmly seated.

Note: The Five of Hearts is keyed to go in one way only. If you feel resistance before the Five of Hearts is fully inserted, remove it, align it as shown in the figure below and re-insert it.

Inserting the Five of Hearts in your computer.

With the Five of Hearts installed in a PC Card slot, an operating system prompt appears indicating the Five of Hearts has been detected and that software must be installed.

Installing the Software

The following section includes software installation instructions which apply to Windows 95, Windows 95 OSR2 and Windows NT 4.0.

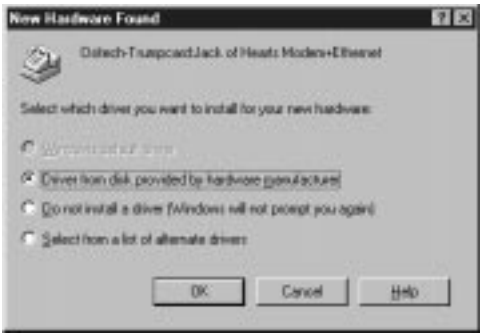
Notes: *Windows 3.1, Windows for Workgroups and DOS installation instructions are available from our website (http://www.ositech.com).*

To use the advanced features of the DPI technology, run Ositech's setup program (refer to the section, "Configuring Your Modem for DPI Connections", p. 3-13).

Determine which operating system you are using and follow the appropriate procedure.

Windows 95

When the Five of Hearts is inserted in a PC Card slot, the *New Hardware Found* window appears.



To install the Five of Hearts software:

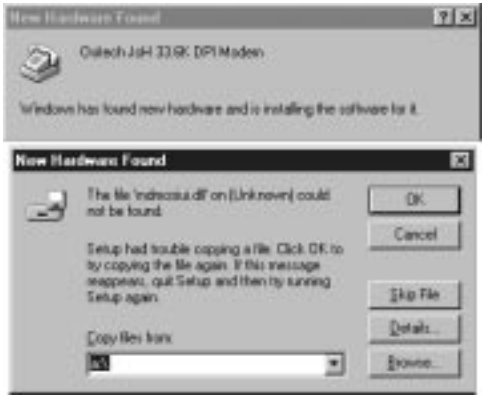
1 Select *Driver from disk provided by hardware manufacturer*, and click *OK*.

The *Install from Drive* window appears.

2 Insert the *Five of Hearts Installation* disk.

3 Select the drive and file by typing `a:\` and click *OK*.

The *New Hardware Found* window opens.



4 Select the drive and file by typing `a:\` and click *OK*.

The necessary modem software is installed. The *New Hardware Found* window reopens.

5 Insert the *Network Drivers* Disk, and select the drive and file by typing `a:\` and click *OK*.

The necessary network software is installed. When the software installation process is complete, you are prompted to restart your computer.

6 Click *Yes* to Restart your computer.

With the Five of Hearts inserted in a PC Card slot and the necessary software installed and configured, the Five of Hearts is ready for both modem and Ethernet operation.

OSR2 Windows 95

When the Five of Hearts is inserted in a PC Card slot, the *Update Device Driver Wizard* window appears.

To install the Five of Hearts software:

1 Click *Next*.

The Update Device Driver searches for a driver.

2 Click *Other Location*.

The *Select Other Location* window opens.

3 Select the drive and file by typing `a:\w95_osr2.` Click *OK*.

The *Update Device Driver Wizard* window reappears. The file *w95_osr2* is displayed as the selected file.

4 Click *Finish*.

You are prompted to insert the *Ositech Five of Hearts Installation* disk.

5 Insert the *Ositech Five of Hearts Installation* disk, and click *OK*.

The *Copying Files...* window opens.

6 Click *OK*.

The *Update Device Driver Wizard* window reappears.

7 Click *Next*.

8 Click *Other Location*.

The *Select Other Location* window opens.

9 Select the drive and file by typing `a:\w95_osr2`. Click *OK*.

The *Update Device Driver Wizard* window reappears. The file *w95_osr2* is displayed as the selected file.

10 Click *Finish*.

You are prompted to insert the *Ositech Five of Hearts Modem Installation* disk.

11 Insert the *Ositech Five of Hearts Modem Installation* disk, and click *OK*.

The *Copying Files...* window opens.

12 Click *OK*

The *Update Device Driver Wizard* window reappears.

13 Click *Next*.

14 Click *Other Location*.

The *Select Other Location* window opens.

15 Select the drive and file by typing `a:\w95_osr2`. Click *OK*.

The *Update Device Driver Wizard* window reappears. The file *w95_osr2* is displayed as the selected file.

16 Click *Finish*.

You are prompted to insert the *Ositech Five of Hearts Network Installation* disk.

17 Insert the *Ositech Five of Hearts Network Installation* disk, and click *OK*.

The *Copying Files...* window opens.

18 Click *OK*.

The necessary software is installed.

With the Five of Hearts inserted in a PC Card slot and the necessary software installed and configured, the Five of Hearts is ready for both modem and Ethernet operations.

To log on to your network, you must first restart your computer.

Windows NT

Ensure the Five of Hearts is inserted in a PC Card slot. For Windows NT, both the Modem and Ethernet functions must be configured.

To install the Five of Hearts software:

1 Select *Settings* from the *Start* menu.

2 Open the *Control Panels*.

3 Double-click the *Network* Icon.

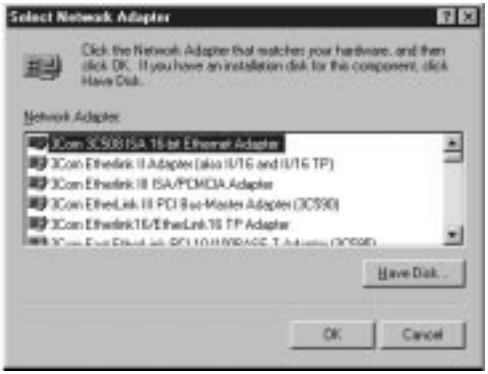
Note: *If you do not have a network installed on your computer, a window will appear which prompts you to install a network. Follow the screen prompts and then continue with Step 4.*

The *Network Control Panel* opens.

4 Click the *Adapters* tab.

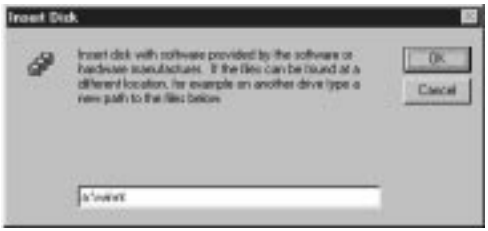
5 Click *Add....*

The *Select Network Adapter* window opens.



6 Select *Have disk* from the location box.

The *Insert Disk* window opens.



7 Select the drive and file by typing `a:\winnt`, insert the *Five of Hearts Installation* disk, and click *OK*.

The *Select OEM Option* window opens.

8 Select “Ositech Five of Hearts Trumpcard”, and click *OK*.

The necessary software is installed. Once the software is installed, the *Ositech Trumpcard PCMCIA Card Setup* window opens.

9 Select the settings that are appropriate for your system, and Click *Continue*.

The *Network* window reappears and "Ositech Five of Hearts" is highlighted.

10 Click *Close*.

The settings are configured.

11 Restart your computer.

Once your computer restarts, the Ethernet functions are configured and the modem is recognized by the system. The modem must now be configured for use.

To configure the modem:

1 Select *Settings* from the *Start* menu.

2 Open the *Control Panels*.

3 Double-click the *Modem* Icon.

4 Click *Add...*.

Windows NT auto-detects the Five of Hearts modem.

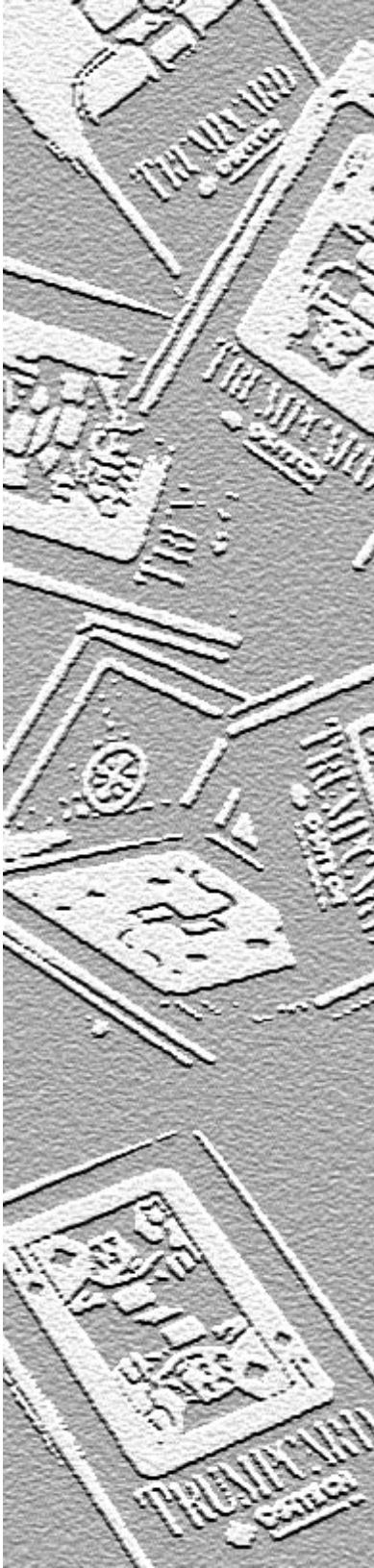
6 Click *OK*.

The Five of Hearts modem function is configured.

With the Five of Hearts inserted in a PC Card slot and the necessary software installed and configured, the Five of Hearts is ready for both modem and Ethernet operations.

Section Three

Modem Operations



QuickStart Guide to Using Your Modem

This section provides brief procedures for using your Jack of Hearts with landline and digital connections.

Before using your Jack of Hearts, ensure it is properly inserted in a PC Card slot of your computer, and that the Jack of Hearts is recognized and enabled as a modem. Ensure the software is installed. Refer to the section “Installing the Software”, p. 2-6 for details.

Once the necessary modem enabling software is in place, connect the Jack of Hearts to the telephone network and configure your communications software to work with the Jack of Hearts.

Step 1: Connecting the Jack of Hearts to the Telephone Network

The Jack of Hearts can connect to the telephone network using landline, cellular or DPI connections, and so provides true universal connectivity.

Landline

The direct-connect modem cable is used to connect the Jack of Hearts to an analog tip / ring phone line. Such lines are used in most households. Modem users commonly make such connections.

Digital Phone Interface (DPI)

Unlike most households, professional environments most commonly use digital (PBX) phone lines. Digital phone lines use a higher current than household analog landlines, and only digital phones can be plugged into digital lines. Like all modems, the Jack of Hearts is an analog modem and cannot be plugged directly into a digital phone wall jack.

Ositech's internal DPI technology overcomes this high current barrier by replacing the telephone *handset* with a modem. The DPI technology allows the modem to interpret the digital signals sent to the handset as data.

The DPI connection.

If you connect the Jack of Hearts to a telephone wall jack using the direct-connect modem cable, without using the DPI adapter, and the Jack of Hearts does not work, the wall jack is most likely one for a digital phone line. Attempt a connection using the DPI adapter (refer to the section "Connecting Using the DPI Technology") . Attempt this procedure before contacting Ositech's Technical Support department.

Note: *If you connect your Jack of Hearts directly to a digital phone network without using the DPI adapter, the Jack of Hearts will not operate. The Jack of Hearts includes Digital Line Guard which protects the Jack of Hearts from being damaged by digital phones' higher currents.*

Connecting the Jack of Hearts to an Analog Telephone Jack

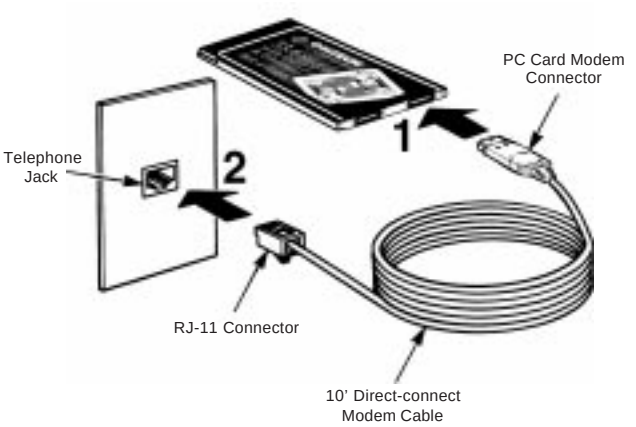
The Jack of Hearts can connect directly to the analog landline telephone jacks found in most households.

To connect the Jack of Hearts to an analog landline telephone jack:

1 Plug the PC Card modem connector into the Jack of Hearts.

Note: *The PC Card modem connector is keyed to go in one way only. If you feel resistance before the connector is fully inserted, remove the connector, turn it over, and re-insert it.*

2 Plug the RJ-11 connector into the telephone jack. If you wish to have both the telephone and the Jack of Hearts connected to a single telephone jack, a telephone Y-connector (not included) is required.



Connecting the Jack of Hearts to an analog telephone jack.

Connecting Using DPI Technology

The Jack of Hearts can connect to the telephone network via a digital phone using Ositech's built-in DPI technology. The connection is made using the coiled telephone cord which connects the handset to the base unit. The coiled telephone cord must detach from the handset to make this connection.

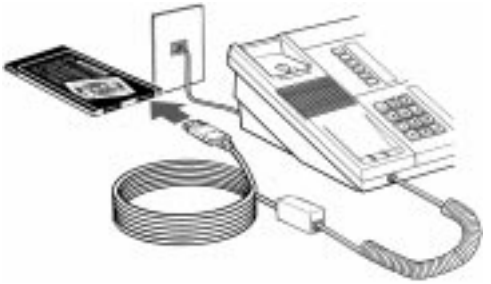
Note: *Ositech's DPI technology allows the Jack of Hearts to connect and operate via a telephone handset connection. DPI technology does <u>not</u> allow the Jack of Hearts to operate when directly connected to a digital wall jack.*

With the Jack of Hearts installed in your computer and working:

1 Unplug the telephone cord from the digital telephone handset jack and plug the telephone cord into the small receptacle of the DPI adapter.

2 Plug the telephone jack of the direct connect modem cable in to the large receptacle of the DPI adapter.

3 Plug the PC Card modem connector into the Jack of Hearts.



4 Return the handset to the cradle.

Note: The digital phone handset should not be attached to either the telephone base unit or the Jack of Hearts.

Step 2: Configuring Your Communications Software

Refer to the documentation supplied with your communications software for any information regarding modem setup.

The Jack of Hearts is associated with the user-friendly device name "Ositech JoH 33.6K DPI Modem". If your communications software does not support user-friendly device names and cannot support COM port settings, you can determine the required I/O Port and IRQ values as follows:

1 From the *Start Menu Settings* shortcut, invoke *Control Panel*.

2 Select *Modems*, and in the *Modems* window, select the *Diagnostics Properties* tab.

3 Beside the name "Ositech JoH 33.6K DPI Modem" is the COM port association.

4 Configure your communications software for this COM port setting.

Once the Jack of Hearts is connected to the telephone network, the Jack of Hearts is ready for use.

Step 3: Using Your Jack of Hearts

The Jack of Hearts is a cellular capable 33.6 Kbps data and fax modem. The Jack of Hearts contains Ositech's Digital Phone Interface (DPI) technology. The Jack of Hearts can connect to the telephone network using landline, cellular or DPI connections.

Using Landline Connections

To use your Jack of Hearts for data or fax operations with a landline connection:

1. Ensure that all required dialed digits are configured in your communications software.
2. Use your communications software to perform modem operations.

Using DPI for Digital Connections

Your Jack of Hearts is an analog modem which can connect, using Ositech's Digital Phone Interface (DPI) technology, to the digital phones found in most professional environments. DPI technology supports both outgoing and incoming calls.

Ositech has developed the DPI Assistant, a Windows application and serial port driver that detects DPI connections. When required, the DPI Assistant prompts you to remove the handset from the cradle and dial manually.

Note: The DPI Assistant is a Windows 95 application and will operate only with true 32bit Windows 95 data and fax communications software.

Outgoing calls

DPI connections require more operator intervention than standard landline connections. This is due to the fact that the handset must be operated manually for each call, the extensive variety of digital telephone systems and their specific operation parameters.

The Jack of Hearts comes preconfigured to operate with many digital telephone systems. If you are unable to establish a DPI connection using the preset configuration, run the DPI Wizard to configure the modem for the telephone system you are using currently.

The following section details how to make a DPI connection. Before beginning, ensure the following conditions have been met:

- The Jack of Hearts is connected via the DPI adapter to a digital phone base unit via the handset cord (refer to the section “Connecting Using DPI Technology”, p. 3-5 for details).
- The digital phone handset is seated in the cradle.

Placing an Outgoing Call

This procedure works with most communications software packages, providing the DPI Assistant is installed. To use your Jack of Hearts for data or fax operations with a digital connection:

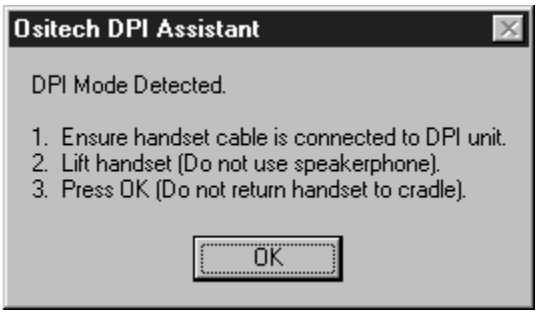
1 Operate your communications software as you do normally.

When your communications software has instructed the modem to dial, the DPI Assistant intervenes.

2 Follow the dialog instructions to establish a DPI connection.

If the telephone system prevents the DPI Assistant from accessing an outside line, the DPI Assistant prompts you with the number to dial.

If you use the DPI Wizard's database to select a telephone system that supports *auto-dialing* dialing, you will be prompted only to lift the handset from the cradle.



3 Click *OK* to proceed with the modem connection.

You can hear the call in progress on your computer's internal speaker.

Notes: ***Do not return the handset to the cradle until the modem connection is terminated.***

If you are using a handsfree digital telephone, when the handset is removed from the cradle you should not hear what is occurring over the telephone line from the digital base unit.

If after multiple attempts your Jack of Hearts does not connect to the remote location you will have to configure the DPI to work with the digital telephone system to which your Jack of Hearts is currently connected. To do so, refer to the section "Configuring Your Modem for DPI Connections", p. 3-13 for details.

Receiving an Incoming Call

Incoming calls can be completed only via manual intervention. These calls depend on your communications software more than the phone system. Most communications software packages use the COM port RI status indicator or the RING response string to detect an incoming call. Since the Jack of Hearts cannot detect ringing while attached to the DPI adapter, your communications software must support a manual answer mode. If your communications software package does not support a manual answer mode, your communications software package might not support incoming calls when operating through the DPI adapter.

To receive incoming calls while using data communications software in terminal mode:

1. When the telephone base unit rings, type ATA and press *Enter*.
2. Remove the handset from the cradle, and place the handset beside the telephone base unit. If the ringing phone line is not automatically selected, manually select it. Wait for the modems to connect.
3. Use your communications software to perform modem operations.

Note: *If after multiple attempts your Jack of Hearts does not connect to the remote location you will have to configure the DPI to work with the digital telephone system to which your Jack of Hearts is currently connected. To do so, refer to the section "Configuring Your Modem for DPI Connections", p. 3-13 for details.*

Configuring Your Modem for DPI Connections

Digital Phone Interface (DPI) is an internal feature of the Jack of Hearts. The DPI technology allows a TRUMPCARD modem to connect to a digital telephone base unit through the telephone handset cord. This function allows modem operations to be performed when direct access to a standard analog phone line is not possible.

DPI automatically uses its default settings which work with most popular digital phone systems. Connect your Jack of Hearts to a digital phone and attempt a modem connection using your communications software. If the attempt does not work, the DPI settings must be adjusted for the particular telephone system and handset to which it is connected.

The optimal way to adjust the DPI settings is to use the DPI Wizard, a Windows-based application (refer to the section "DPI Wizard").

Note: *To use the advanced features of the DPI technology, run Ositech's setup program (refer to the section below, "DPI Wizard").*

The Jack of Hearts will retain its most recent settings and can operate without reconfiguration provided the same telephone system and handset are used. The configuration application allows the creation of multiple Location Profiles which can be recalled and applied as needed (refer to the section "Creating Location Profiles", p. 3-18).

DPI Wizard

Using the DPI Wizard, you can configure your Jack of Hearts for operation with a particular digital telephone system. This section describes how to configure your Jack of Hearts for use with a digital telephone system using the DPI Wizard default settings. For telephone systems not listed in the DPI Wizard's database, the DPI Wizard can find modem settings which best match the characteristics of the telephone system and handset to which the Jack of Hearts is currently connected.

This configuration can then be applied to a Location Profile which stores the modem settings in a database unit. If you return to the same location, the Location Profile can be loaded.

System Requirements

To use the DPI Wizard you require:

- Windows 95, Windows 95 OSR2 or Windows NT.
- 500 Kb of available hard drive space for installation.

Note: Following the installation process you must restart your computer. Close all open applications before starting the DPI Wizard installation process.

Step 1: Installing the software

To install the Digital Phone Interface Wizard:

1. Insert the *DPI Wizard Installation* diskette into the 3.5" floppy drive.
2. Invoke the file **`Setup.exe`** from the Windows Explorer in Windows 95 or Windows NT.
3. Follow the dialog instructions.

The following steps guide you through a procedure to configure the Jack of Hearts for operation with the digital telephone base unit and handset to which the Jack of Hearts is currently connected.

Before adjusting the DPI default settings, ensure the following:

- The Jack of Hearts is inserted in your computer and functioning under your computer's operating system.
- The Jack of Hearts is connected to a digital phone.
- The telephone's handset is seated in the cradle.

Step 2: Adjusting DPI default settings

Note: *Some digital phones provide a handsfree speakerphone mode. Do not use a handsfree speakerphone mode while configuring the Jack of Hearts for a DPI connection.*

1 Start the DPI Wizard. The DPI Wizard can be invoked using the *DPI Wizard* shortcut located in the *Start Menu Programs* folder.

The *Ositech DPI Wizard* window appears.

2 Click *Next*. The next Wizard window opens. Continue clicking *Next* until the *Apply Location Profile* window appears.

3 Click *Test*. The *Perform Configured Profile Test* window appears.

Note: Although your Jack of Hearts is rated at a speed of 33.6 Kbps, this speed might not be attained using certain digital telephone systems.

4 Select *Fax machine to be called* or *Data/modem to be called*. The Wizard automatically defaults to *Data/modem to be called* if no selection is made.

5 Remove the handset from the cradle and place the handset beside the telephone base unit.

6 Dial the remote location's number (including any necessary digit to obtain an outside line–usually "9"), and click *Connect.*

One of the following messages will appear. Check the message and take the appropriate action:

Connection Established!...Hang Up!

Click *Finished* and return the handset to the cradle. The Wizard has successfully tested the new settings. The settings configured and applied to the Jack of Hearts can be used with your communications software.

Line busy try again later!

Wait 60 seconds and retry a connection by repeating steps 4 through 6.

Unable to Connect!

The DPI Wizard did not detect a carrier signal and could not connect to the remote modem with the current settings. The DPI Wizard offers a range of modem settings. Use the following procedure to adjust the modem settings.

7 In the *Perform Configured Profile Test* window, click *Back*. The *Apply Location Profile* window opens. Click *Back*.

The *Existing Location Selected* window opens.

8 Click *Advanced*. The *Advanced Location Profile* window opens. Click *Edit*.

The *Edit Location Name* window opens.

9 Click *Next*. Continue clicking *Next* until the *Edit Option Setting* window opens.

10 From the *Option Setting* list, select an alternate option, then click *Next*.

The *Apply Location Profile* window opens.

11 Click *Test*. The *Perform Configured Profile Test* window opens. Click *Connect*.

The test is repeated using the new option settings. When the test is complete, a test message appears.

12 If the message **unable to connect!** recurs, perform this operation by repeating steps 7 through 11 until all DPI Wizard settings are exhausted. If these attempts fail, contact Ositech's Technical Support department for assistance.

Step 3: Testing your communications software

1 Start your communications software.

2 Test your communications software by performing modem operations.

Ensure that you attempt a data modem connection. Use fax software to attempt a fax modem connection if required.

Your Jack of Hearts is now configured for the telephone system to which it is currently connected, and has been successfully tested with your communications software.

Creating Location Profiles

Using the DPI Wizard, you can configure your Jack of Hearts for operation by creating a Location Profile and associating it with a particular telephone base unit and handset. The DPI Wizard includes an extensive database of telephone manufacturers and models. If a profile exists for the location (e.g., a hotel or branch office), then you can load the profile. If you are using your Jack of Hearts in a new location, then you should create a new Location Profile.

To create a new Location Profile:

1 Start the DPI Wizard. The DPI Wizard can be invoked using the *DPI Wizard* shortcut located in the *Start Menu Programs* folder. Click *Next*.

The *Location Profile Options* window appears.

2 Select *New Location* then click *Next*.

The *New Location Profile* window opens.

3 Enter a name for the Location Profile. For instance, enter a name like `At the ABC Company`. When you are finished, click *Next*.

The *New Location Instructions* window opens.

4 Enter any pertinent information in this window. For instance, if the digital telephone for which you are configuring your modem has a speakerphone option, make a note: `disable the speakerphone option`. When you are finished, click *Next*.

The *New Location Telephone Settings* window opens. *Pre-configured Telephone System from Database* is selected.

5 Ensure *Pre-configured Telephone System, from Database* is selected and click *Next*.

The *Pre-Configured Telephone System* window opens.

6 From the lists, select the manufacturer of the digital telephone and the make or model number. When you are finished making your selections, click *Next*. If the digital telephone system you are using does not appear in the list, go to step 8.

The *Apply Location Profile* window opens.

7 Click *Finish.*

The Location Profile is now saved in the DPI Wizard's database and your Jack of Hearts is configured for the digital telephone system to which it is currently connected.

8 If the *Pre-Configured Telephone System* list does not include the digital telephone system you are using currently, click *Back*.

The *New Location Telephone Settings* window opens. *Pre-configured Telephone System from Database* is selected.

9 Select *Wizard, perform connection test to derive settings* and click *Next*.

The *Wizard Test Introduction* window opens.

10 Follow the dialog instructions.

Refer to the section “DPI Wizard”, p. 3-13 for details.

Modem Command Reference

This section of the manual describes the AT commands the Jack of Hearts supports. This information includes command descriptions and default settings.

AT commands cannot be entered or sent to the Jack of Hearts from the operating system command line. You must use a communications software package to communicate with the Jack of Hearts. Your communications software might handle all of the communications with the Jack of Hearts—you might never have to issue an AT command yourself. Refer to your communications software documentation for more information.

Also included in this section is a list of S registers and their default settings.

At the end of the section is a list of facsimile commands supported by the Jack of Hearts. These commands appear for reference only—you cannot operate the facsimile manually.

This section covers the following:

- Modem Command Guidelines.
- Modem Command Summary.
- Modem S Registers.
- Default Register Settings.
- Modem Register Summary.
- Facsimile Commands.

Modem Command Guidelines

Each of the following modem command descriptions has a default setting. The Jack of Hearts loads the default values at initialization (when you turn the computer's power on or you issue the ATZ command). If you exclude a mandatory parameter, the Jack of Hearts assumes a zero value. Invalid commands or parameters return the **ERROR** message.

The command line contains a single command or a series of commands. You can separate commands with a space for readability, but the command line cannot exceed 41 characters. The Jack of Hearts performs the command after you send a terminating character. The default terminator is carriage return (ASCII 013), but you can change this by writing to register S3.

You can edit the command line using the backspace character (ASCII 008) or change this by writing to register S5. The backspace cannot be 0, greater than 127 or the terminating character in the command line.

All command lines begin with AT (in capital or lower case letters). A command line can be terminated at any time by issuing CTRL-X (ASCII 018). The Jack of Hearts will ignore the command line and return an **OK** message. You can use A / to repeat the last command line. The A / does not require a terminating character.

An escape code sequence (+++) returns the Jack of Hearts to the command mode from data mode. There must be a time delay between the last character transmitted and the first character of the escape code. You can change the delay by writing to register S12; (default 1 second). The escape code character must occur three times in succession for an escape.

Parameters that are entered for the AT and the AT& commands are limited in value to 0-255; the parameter is "MOD"ed with 256. The result must be within the specified range; if it is not, the Jack of Hearts returns an **ERROR** message.

Parameters entered for an S register are also "MOD"ed with 256. Parameters that are out of range are stored in the S register; however, no **ERROR** message is reported. Functionally the lower or higher register limit is used.

If you enter an out of range parameter for the AT\ or AT% commands, the upper limit is stored and no **ERROR** message is reported.

Following the modem command description assume **OK** and **ERROR** as valid responses for almost all of the commands. Other valid responses for a command, if any, are discussed with the command descriptions.

Note: To revert to the factory default settings, type AT&F&W.

Modem Command Summary

Command	Title	Default	Parameters
A/	Re-execute Command	none	none
A	Answer	none	none
Bn	Set ITU-T or Bell Mode	1 *	0 or 1
Dn	Dial T	t	0-9, A B C D * # L P T R & ! @ W , ; ^ S=n
En	Command Echo	1 *	0 or 1
Fn	Select Line Modulation (14400)	0	0-10, 13-19
+MS	Select Line Modulation (28800)	11	0-3, 9-11, 64, 69, 74
Hn	Switch-Hook Control	0	0 or 1
In	Identification	0	0-6
Ln	Speaker Volume	1	0-3
Mn	Speaker Control	1 *	0-3
Nn	Automode Detection	1 *	0 or 1
On	Return To The On-Line State	none	0 or 1
P	Set Pulse Dial As Default	none *	none
Qn	Result Code Display	0 *	0 or 1
Sn	Reading/Writing S Registers	none	n= 0-95 x= 0-255
T	Set Tone Dial As Default	none *	none
Vn	Result Code Form (Message Control)	1 *	0 or 1
Wn	Connect Message Control	0 *	0-2
Xn	Extended Result Codes	4 *	0-4
Yn	Control Long Space Disconnect	0 *	0 or 1
Zn	Reset	0	0 or 1
&Cn	DCD Option	1 *	0 or 1
&Dn	DTR Option	2 *	0-3
&F	Restore Factory Configuration	none	none
&Gn	Set Guard Tone	0 *	0-2
&Jn	Telephone Jack Selection	0 *	0 or 1
&Kn	DTE/Modem Flow Control	3 *	0, 3- 6
&Ln	Line Type	0 *	0 or 1
&Mn	Communication Mode	none*	none
&Pn	Dial Pulse Ratio	0 *	0-3
&Qn	Communication Mode	5 *	0, 4-6
&Rn	RTS/CTS Option	1 *	0 or 1
&Sn	DSR Option	0 *	0 or 1
&Tn	Test And Diagnostic	5 *	0, 1, 3-8
&V	View Configuration and User Profiles	none	none
&Wn	Store User Profile	none	0 or 1
&Yn	Designate Default User Profile	0 *	0 or 1

Command	Title	Default	Parameters
&Zn=x string	Store Phone Number	none	n=0-3, x=dial
\Bn	Transmit Break	3	1-9
\Gn	Modem-to-Modem Flow Control	0	0 or 1
\Kn	Break Control	5	0-5
\Nn	Operation Mode Control	3	0-5
%Cn	Compression Control	3 *	0-3
%En	Disable/Enable Line Quality Monitor	2	0-3
%L	Report Received Signal Level	none	none
%Q	Report Line Signal Quality	none	none
-Kn	MNP Extended Services	1	0-2
*Hn	Link Negotiated Speed	0 *	0-2
)Mn	Transmit Level Adjust for Cellular Connection	0	0 or 1
:En	Compromise Equalizer	1	0 or 1
@Mn	Initial Cellular Power Level	0	0-31
[n	Event Based Command	n=0	n=0 or 1

** Indicates command is saved in Non-Volatile Memory*

Modem S Registers

The S registers are summarized below along with their default values. Registers denoted with * may be stored in one of the two user profiles by entering the &Wn command. One of these profiles may be loaded at any time by using the Zn command. Registers denoted with ** indicate that writing to bit mapped options registers can result in unreliable and unpredictable operations.

Default Register Settings

The factory default values are stored in ROM and are loaded into the active configuration at power up or by the Zn command. In addition, the designated default profile is subsequently loaded, and might change some of the factory default values. The designated default profile can be changed by entering the &Yn command where n is one of the two possible user profiles. All of the factory default values may be loaded at any time by entering the &F command.

Modem Register Summary

Register	Title	Default	Parameters
S0 *	Number of Rings Till Auto-Answer	0	0-255 rings
S1	Ring Counter	0	0-255 rings
S2 *	Escape Character	43	0-255, ASCII
S3	Carriage Return Character	13	0-127, ASCII
S4	Line Feed Character	10	0-127, ASCII
S5	Back Space Character	8	0-32, ASCII
S6	Wait For Blind Dialing *	2	2-255 sec.
S7 *	Wait For Carrier After Dial	50	1-255 sec.
S8 *	Pause Time For Dial Delay	2	0-255 sec.
S9 *	Carrier Detect Response Time	6	1-255 1/10sec.
S10	Lost Carrier To Hang Up Delay	14	1-255 1/10sec.
S11 *	DTMF Tone Duration	95	50-255 msec.
S12 *	Escape Code Guard Time	50	0-255 1/50sec.
S13	Reserved	none	none
S14 *	Bit Mapped Options **	159	none
S15	Reserved	none	none
S16	Bit Mapped Test Options **	0	none
S17	Reserved	none	none
S18 *	Test Timer	0	0-255 sec.
S19	Reserved	0	none
S20	Reserved	none	none
S21 *	Bit Mapped Options **	52	none
S22 *	Bit Mapped Options **	117	none
S23 *	Bit Mapped Options **	54	none
S24	Sleep Inactivity Timer	10	0-255 sec.
S25 *	Delay To DTR	5`	0-255 1/100sec.
S27 *	Bit Mapped Options **	73	none
S28	Bit Mapper Options	0	none
S29	Reserved	none	none
S30 *	Inactivity Timer	0	0-255
S31	Bit Mapper Options **	194	none
S32	XON Flow Control Character	17	0-255
S33	XOFF Flow Control Character	19	0-255
S34-S35	Reserved	none	none
S36 *	LAPM Failure Control	7	0-7
S37 *	Desired Telco Line Speed	0	0-12
S38 *	Delay Before Forced Disconnect	20	0-255
S39 *	Bit Mapped Options **	3	none
S40	Bit Mapped Options (MNP) **	104	none
S41	Bit Mapped Options (MNP) **	195	none
S44	Unused	none	none
S46 *	Protocol Selection	138	136 or 138
S48 *	V.42 Negotiated Action	7	0, 7 or 128
S86	Connection Failure Cause Code	0	0, 4, 5, 9, 12-14
S95 *	Extended Result Codes	0	0-7

Facsimile Commands

Facsilime commands are listed here only for reference. Use of these commands should be limited to facsimile application software.

If you have additional questions about the facsimile operation, please contact Ositech.

Class 1 Commands

Command	Description
+FTS=n	Stop transmission and wait
+FRS=n	Receive silence
+FTM=n	Transmit data
+FRM=n	Receive data
+FTH=n	Transmit data with HDLC framing
+FRH=n	Receive data with HDLC framing

Class 2 Commands

Action Commands

Command	Description
D	Originate a call
A	Answer a call
+FDT=	Data transmission
+FET=N	Transmit page punctuation
+FDR	Begin or continue phase C receive data
+FK	Session termination

DCE Responses

Command	Description
+FCON	Facsimile connection response
+FDCS:	Report current session
+FDIS:	Report remote identification
+FCFR	Indicate confirmation to receive
+FTSI:	Report the transmit station ID
+FCSI:	Report the called station ID
+FPTS:	Page transfer status
+FET:	Post page message response
+FHNG	Call termination with status

Session Parameters

Command	Description
+FMFR?	Identify manufacturer
+FMDL?	Identify model
+FREV?	Identify revision
+FDCC=	DCE capabilities parameters
+FDIS=	Current session parameters
+FDCS=	Current session results
+FLID=	Local ID string
+FCR	Capability to receive
+FPTS+	Page transfer status
+FCR=	Capability to receive
+FAA	Adaptive answer
+FBUF?	Buffer size (read only)
+FPHCTO	Phase C time out
+FPHXERR	Facsimile error value
+FBOR	Phase C data bit order

Modem Test Procedures

This section describes the different tests you can perform to determine the source of a problem. These tests include:

- Local Modem Self-Test.
- Local Analog Loopback.
- Local Analog Loopback with Self-Generated Pattern.
- Remote Digital Loopback.
- Remote Digital Loopback with Self-Generated Pattern.
- Local Digital Loopback.
- Testing Modem Memory.

Local Modem Self-Test

To run a local self-test:

1 Ensure the modem is in an interactive or local mode. Refer to your communications software documentation for more information.

Type AT and press *Enter*.

The modem responds with **OK**.

2 If you cannot see the characters you entered, the local modem echo is off. To turn on the local modem echo, type ATE1 and press *Enter*.

3 If double characters appear on the screen, both the modem and software are set to local echo On. To set the modem to local echo off, type ATE0 and press *Enter*.

If *0* appears on your screen instead of **OK**, the numeric form result codes have been enabled. To select textual result codes, type ATV1 and press *Enter*. The modem responds with **OK**.

If the modem does not respond:

- Ensure that the communications software setup procedure was run after the modem was installed. Setup must be run each time the modem is installed.
- Check that the COM port address of the serial port is identical to the software COM port assignment.

Local Analog Loopback

This test checks the path between the local modem and the PC. This test only works when the modem is in direct mode (&Q0) and the COM port baud rate is set to 33600 bps or less.

Before running the local analog loopback test, ensure your modem is in command mode.

To run a local analog loopback test:

1. Type `AT&T1` and press *Enter*. Wait until the modem returns a **`CONNECT`** message.
2. *Enter* a test message. For example, type `This message should be echoed back`.

   The message should immediately appear on the screen as you enter it.
3. Type `+++`.

   This command is an escape sequence which returns the modem to command mode.

   The modem will respond with **`OK`**. The modem is now in command mode.
4. Enter `AT&T0` and press *Enter* to end the test.

Local Analog Loopback with Self-Generated Pattern

This test verifies the integrity of the local modem transmit and receive circuits. The test works only when the modem is in direct mode (&Q0) and the COM port baud rate is set to 33600 bps or less.

For this test, the modem must be in command mode.

To run a local analog loopback with self-generated pattern test:

1 Type AT&T8 and press *Enter*. Wait approximately ten seconds.

The modem will not respond visibly.

2 Enter AT&T0 [*ENTER*] to mark the end of the test. The modem will respond with a three-digit number indicating the test results.

During this test, a continuous data sequence is sent by the local modem transmitter and picked up by the local modem receiver. The transmitted and received data sequences are compared and the modem then returns a three-digit number indicating test results. If the result is 000, the local modem transmit and receive circuits have passed the test.

Remote Digital Loopback

This test checks the local and remote modems and the telephone circuit. The test only works when the modem is set to direct mode (&Q0) and the COM port baud rate is set to 33600bps or less.

The modem sends a message to the remote unit. The remote unit loops the test message back. The resulting message is then compared with the original message to verify the connection. If the data patterns do not match, then a problem exists with either the local or remote modem or the telephone circuit. If this is the case, both local and remote stations might initiate local analog loopback tests to further isolate the source of the problem.

To run a remote digital test:

1. Type `AT&F&Q0` and press *Enter* to place the modem in basic asynchronous mode.
2. Establish a connection with a remote modem and enter `+++` (the escape sequence) to revert to command mode. The modem will reply with **`OK`**.
3. Type `AT&T6` and press *Enter* to begin the test. The modem will display a **`CONNECT`** response if the loopback data link has been successfully completed. It will display an **`ERROR`** response if the link has failed.

   If successful, enter a test message. The message will be echoed on the local screen.
4. Type `+++` (the escape sequence). The modem will respond with **`OK`**.
5. Type `AT&T0` and press *Enter* to end the test. The modem will respond with **`OK`**.

Remote Digital Loopback with Self-Generated Pattern

This procedure tests the remote modem port, the telephone line and the local serial and modem ports. The test works only when the modem is in direct mode (&Q0) and the COM port baud rate is set to 33600 bps or less.

This test is similar to the Remote Digital Loopback test.

In this test, the local modem sends the remote modem a special test data sequence and the remote modem returns the data. The local modem examines the returned data and establishes an error count each time a mismatch is detected.

To run a remote digital with self-generated pattern test:

1. Establish a connection with a remote modem.
2. Type `AT&T4` and press *Enter* to ensure that the remote operator has set the modem to accept a Remote Digital Loopback request.
3. Type `AT&T7` and press *Enter* to initiate the remote digital loopback test. The modem will send a test pattern to the remote modem.
4. Type `AT&T0` and press *Enter* to end the test. The modem will return a three-digit number showing the test results. If the result is 000, the local and remote modems and the telephone line have passed the test.

Local Digital Loopback

This test is used to verify the communications link with the remote modem, and works only when the modem is in direct mode (&Q0) and the COM port baud rate is set to 33600 bps or less.

To run a local digital loopback test:

1. Establish a connection with a remote modem.
2. Type `AT&T3` and press *Enter* to place the modem into the local digital loopback mode.
3. Instruct the remote modem operator to enter a message.

   During this test the local modem simply loops any incoming data back to the remote modem. If the information sent mirrors the image received by the remote modem, the test is successful.
4. Type `AT&T0` and press *Enter* to end the test.

Testing Modem Memory

The *I* command can be used to obtain information about the modem's memory and perform a checksum test.

Product Information

This test displays the modem's product information.

- Type `ATI3` and press *Enter*. The modem will respond with a line identifying the modem and its capabilities. Use this information when calling Ositech for technical support.

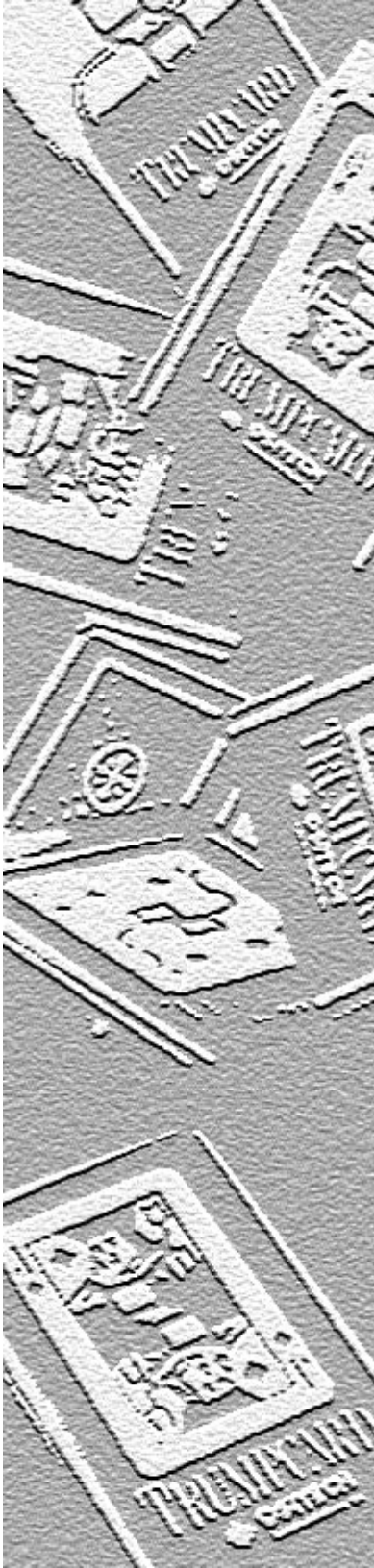
ROM Checksum Test

This test compares the ROM checksum result with a stored value.

- Type `ATI2` and press *Enter* to run this test. The modem will respond with the **OK** prompt if the totals match and an **ERROR** prompt if they differ. If the **ERROR** prompt appears, call Ositech technical support.

Section Four

Ethernet Operations



This section covers:

- Connecting to a 10BaseT Network.
- Connecting to a 10Base2 Network.
- Network driver messages for Windows 95 and Windows NT.

Connecting to a 10BaseT or 10Base2 Network

The Jack of Hearts can connect to an Ethernet network via either a direct-connect Ethernet cable or a Media Access Module (MAM). A direct-connect Ethernet cable connection can be used with 10BaseT cabling. A MAM is required to connect to 10Base2 cabling.

Connecting to a 10BaseT Twisted Pair Network

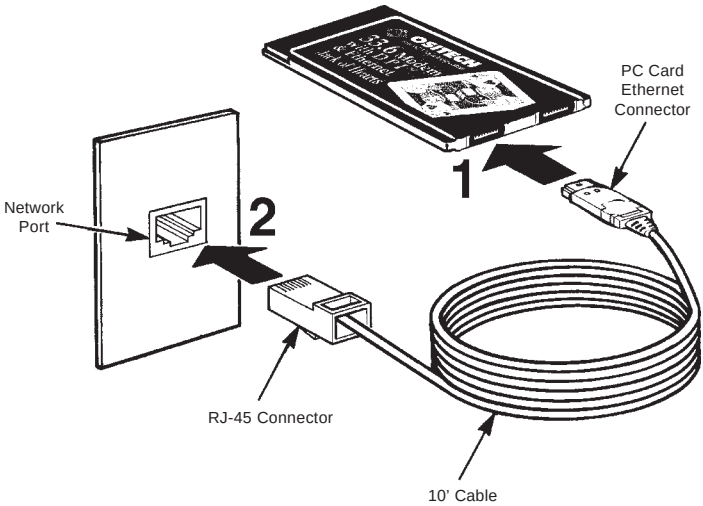
The Jack of Hearts can connect to a 10BaseT network using either a direct-connect Ethernet cable or a Media Access Module.

To connect the Jack of Hearts to a 10BaseT network connection using a direct-connect Ethernet cable:

1 Plug the direct-connect Ethernet cable into the Jack of Hearts socket labeled “Ethernet”.

Note: The PC Card connector is keyed to go in one way only. If you feel resistance before the PC Card Ethernet connector is fully inserted, remove the connector, turn it over and re-insert it.

2 Plug the RJ-45 connector into the network port.



Connecting the Jack of Hearts to a 10BaseT network using a direct-connect Ethernet cable.

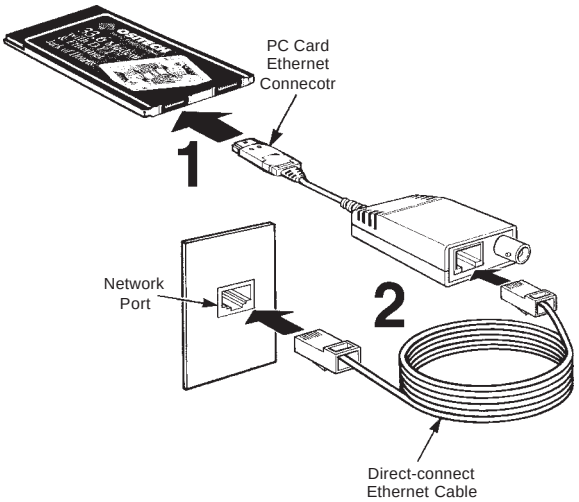
The second method of connecting the Jack of Hearts to a 10BaseT Network is via a Media Access Module.

To connect the Jack of Hearts to a 10BaseT network connection using a Media Access Module:

1 Insert the PC Card Ethernet connector of the Media Access Module into the Jack of Hearts socket labeled “Ethernet”.

Note: The PC Card Ethernet connector is keyed to go into the Jack of Hearts one way only. If you feel resistance before it is fully inserted, remove the PC Card Ethernet connector, turn it over, and re-insert it.

2 Plug the male RJ-45 connector from the Network access cable into the female RJ-45 connector on the Media Access Module.



Connecting the Jack of Hearts to a 10BaseT network using a Media Access Module.

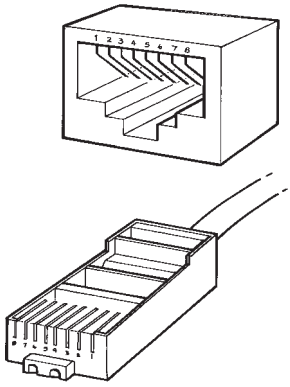
With the Jack of Hearts connected to a network, your Jack of Hearts is operational.

10BaseT Reference

This section covers interface cabling and pinout information, concentrators and twisted pair network characteristics.

Interface Cabling and Pinout

The direct-connect 10BaseT Ethernet cable provided with the Jack of Hearts is wired for direct connection to an Ethernet 10BaseT Concentrator. If the wiring scheme you are using does not match the wiring scheme shown below, then contact Ositech for assistance on how to make a 10BaseT network connection in your environment.



Lead	Signal
1	TX+
2	TX-
3	RX+
4	nc
5	nc
6	RX-
7	nc
8	nc

Concentrators

The Jack of Hearts, when used with a 10BaseT Twisted-pair cable, must always connect to a concentrator. This results in a star-wired network with the concentrator at the centre of the star. The Jack of Hearts is compatible with 10BaseT concentrators from a variety of vendors.

Twisted Pair Network Characteristics

Standard	IEEE 802.3 10BaseT
Data Rate	10 Mbps
Maximum length of connecting nodes per network	100m (328')
Maximum number of computer nodes per network	1024
Twisted-pair cable	Category 3 (10 Mbps) or Category 4 (16 Mbps) or Category 5 (100 Mbps) or which meet the requirements of EIA/TIA-568 and EIA/TIA TSB-36

Connecting to a 10Base2 Thin Ethernet Network

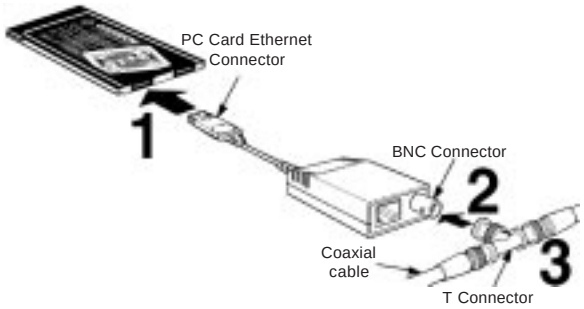
The Jack of Hearts connects to a 10Base2 network using a Media Access Module (MAM). To connect the Jack of Hearts to a 10Base2 network connection using the Media Access Module:

1 Insert the PC Card Ethernet connector of the Media Access Module into the Jack of hearts socket labeled “Ethernet”.

Note: The PC Card Ethernet connector is keyed to go into the Jack of Hearts one way only. If you feel resistance before it is fully inserted, remove the PC Card Ethernet connector, turn it over, and re-insert it.

2 Attach the T-connector to the BNC connector on the Media Access Module, align the notches in the T-connector with the posts on the BNC connector, push the connector in, and twist a one-quarter turn.

3 Connect the coaxial cable(s) to the open ends of the T-connector to form a single Network segment. If your Jack of Hearts is at the end of the network segment, attach a 50 ohm cable terminator to the unused T-connector post.



Connecting the Jack of Hearts to a 10Base2 network.

Thin Ethernet Network Characteristics

Characteristics	Standard Length Segments	Extended Length Segment
Standard	IEEE 802.3 10Base2	IEEE 802.3 10Base2
Data Rate	10 Mbps	10 Mbps
Segment Length	185m (607')	300m (984')
Maximum number of segments between nodes	3 coax; plus 2 repeater links	3 coax; no repeater links
Maximum number of repeaters between nodes	4 when using 2 repeater links	2
Network Span	925m (3035')	900m (2953')
Maximum number of nodes per segment	30	100
Maximum number of nodes per network	1024	1024
Minimum space between nodes	0.5m (1.64'/20")	0.5m (1.64'/20")
Cable Type	RG58 A/U or C/U, 50 ohm	RG58 A/U or C/U, 50 ohm

Media Access Module LED Indicators

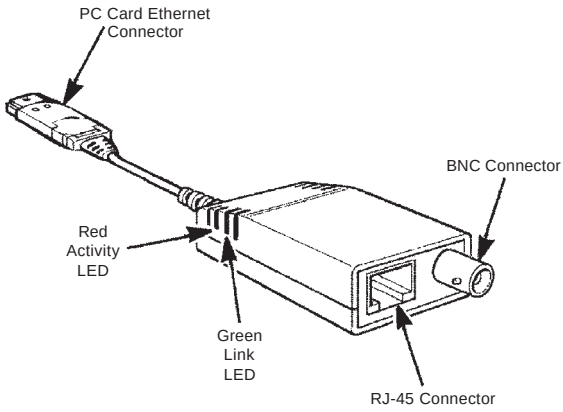
The Media Access Module has two LED indicators which provide visual indication of the state of the network link. The LED indicators operate only once the network driver has been loaded or during diagnostic testing.

Activity LED (RED)

The Activity LED flashes whenever network activity is detected by the Media Access Module. The Activity LED can be used as a simple method of determining the Media Access Module is exchanging data with the network.

Link LED (GREEN)

The Link LED lights whenever a twisted pair connection between the Media Access Module and the 10BaseT concentrator has been made. The Link LED is not used for 10Base2 thin coax connections. If the Link LED is not lit a connection between the Media Access Module and the 10BaseT concentrator has not been detected. Verify the wiring is functional and make sure that a network driver has been loaded.



The Media Access Module (MAM).

Network Driver Parameters

The Jack of Hearts supports the following Windows 95 and Windows NT parameters.

Windows 95

The Windows 95 drivers have parameters which can be specified manually. To change any of these parameters:

1. Open the *Network* Control Panel.
2. "Select Ositech JoH 10Mbps Ethernet Adapter".
3. Click *Properties*.

   The *Ositech JoH 10Mbps Ethernet Adapter Advanced* window opens.
4. Click the *Advanced* tab.
5. Select the setting you wish to change and modify its value.
6. When you have made all the necessary settings changes, click *OK*.

   The new setting are applied.

Transceiver

This value is used to specify the media type that the adapter uses. If the type is *Auto* then the driver will attempt to determine the media type itself.

Auto	Determine using N-WAY
10BaseT	Twisted Pair 10BaseT
10Base2	Thin Coax 10Base2
Power	Power Saving Auto Detect

MaxTransmits

The number of packets that can be stored in the LAN transmit FIFO. This value should be left at 0x1 for the Jack of Hearts.

1 (Default)

1, 2 ... 9

NetworkAddress

Allows the user to override the MAC address that is present in the adapter CIS. The MAC address must be a valid locally administered MAC address.

MAC Address must meet the following criteria:

- Must be six hexadecimal digits in length.
- The multicast bit must be reset.
- The locally administered bit must be set.

IoBase

The I/O address that the Windows 95 Configuration Manager assigned to the Jack of Hearts.

Interrupt

The IRQ address that the Windows 95 Configuration Manager assigned to the Jack of Hearts.

Windows 95 Adapter Messages

If there are errors during the loading or initialization of the OTCETH driver, an entry in the diagnostic NDIS log file (NDISLOG.TXT) will appear. This file is located in the Windows directory, usually \WINDOWS.

All NDISLOG.TXT messages begin with:

Ositech Trumpcard <Jack of Hearts> Ethernet Adapter (0000).

Invalid Value From Adapter, 0x30313030, 0x0000FFFF

PowerOnNIC: Failed in Mode_A

The second value indicates the value that was read back from the BANK SELECT register.

Invalid Value From Adapter, 0x30313031, 0x0000FFFF

PowerOnNIC: FAILED BankSelect register

The second value is the value that was read back from the BANK SELECT register, in this case 0FFFFh.

Invalid Value From Adapter, 0x30323031, 0x0000FFFF

Invalid BankSelect constant.

During initial configuration of the adapter, the BANK SELECT register did not have the 033h in the upper byte.

Invalid Value From Adapter, 0x30323032, 0x0000FFFF

BankSelect register does not cycle.

During initial configuration of the adapter, the BANK SELECT register did not cycle properly.

Invalid Value From Adapter, 0x30323034, 0x0000FFFF

Cannot write/read General Purpose Register.

During initial configuration of the adapter, the driver was unable to read and write to the General Purpose Register.

Adapter Disabled, 0x30333033

No Cable (only for Auto Detect)

There was no cable connected to the adapter, and as a result the adapter was powered down.

Driver Failure

Previously Found Card is invalid.

INTERNAL ERROR and should never occur.

Network Address

Bad Network Address

or

Could not get LAN tuple.

The CIS is corrupt.

Adapter Not Found, 1

Could not find manufacturer's name string (Look for Tuple CISTPL_VERS_1 failed).

Adapter Not Found, 2

Invalid vendor.

Adapter Not Found, 3

Invalid part ID

The CIS is corrupt on the PC Card.

Adapter Not Found

Could not update TRANSCEIVER value

or

Could not update CIS memory window value

or

Could not perform the final Card Services Initialization

or

Did not have the address. Could not do a touchy-feel on the board.

Out Of Resource

Unable to map virtual memory

or

Could not create filter database

or

Could not allocate a structure to control binding.

Missing Configuration Parameter

No IOBASE Conf entry

or

No IRQ Conf entry.

Unsupported Configuration

Unknown TRANSCEIVER

or

Unknown Memory Window.

Interrupt Connect

Could not set up interrupt handler.

Windows NT Event Viewer Entries

The driver places entries in the Windows NT Event Viewer's System Event Log which allows you to diagnose configuration problems.

Error Messages

Failed to register I/O Port range.

The values specified using IoBaseAddress / IoLength and/or IoBaseAddress_1 / IoLength_1 was not available. Another device has claimed the requested I/O range. Reconfigure the adapter.

Attempt to reset the adapter failed.

During initialization the adapter failed to reset properly.

The value specified for the Media parameter is invalid.

The adapter does not support the media type requested, or the media value is incorrect.

The IoBaseAddress value specified in the Registry is invalid.

The IoBaseAddress value is not on a proper alignment.

The InterruptNumber value specified in the Registry is invalid.

The InterruptNumber is invalid, zero or not present.

Failed to map the attribute memory.

Operating system was unable to create a virtual map allowing the driver to access the CIS memory.

The adapter failed to verify correctly. This may indicate that the IoBaseAddress parameter specified for this device is incorrect. Please check your configuration.

While initializing the adapter, the driver detected that the device is not responding properly. A potential I/O conflict exists. Re-configure the driver.

The adapter BankSelect register contained an invalid value. This may indicate that the IoBaseAddress parameter specified for this device is incorrect. Please check your configuration.

While initializing the adapter, the driver detected that the device is not responding properly. Potential I/O conflict exists.

The adapter BankSelect register failed to cycle properly.

While initializing the adapter, the driver detected that the device is not responding properly. Potential I/O conflict.

The adapter failed to update the GeneralPurpose register properly.

While initializing the adapter, the driver detected that the device is not responding properly. A Potential I/O conflict exists.

The PCCARDAttributeMemory value specified in the Registry is invalid.

The PCCARDAttributeMemory value is not present or is not on a 4K alignment.

There is no recognized PC Card host adapter in this machine.

The PC Card host adapter is not one of the recognized controllers or Intel 365 Compatible.

Unable to read the Card Information Structure. This may indicate that the PCCardAttributeMemoryAddress Registry entry for this device is incorrect. Please check your configuration.

Use the diagnostics to re-CIS the adapter.

Not an Ositech part.

Trumpcard not found.

RDY/BSY timeout.

The adapter failed in MODE_A.

Warning Messages

The Ethernet MAC Address contained in the Registry is invalid.

The NetworkAddress registry entry is invalid. (Mutlicast or Locally Administered Bit is not set). Therefore the override will be ignored. You should re-CIS the adapter using the diagnostics utility.

The MAC address contained in adapter ROM is invalid or corrupt.

The checksum of the CIS Network Address did not verify properly. Re-CIS the adapter. The MAC address will still be used.

The MaximumTransmitQueue value in the Registry is invalid.

The registry is corrupted. Re-install the Jack of Hearts.

Informational Messages

There appears to be no network cable attached to this adapter. The adapter has been disabled.

The adapter was configured for auto media detection, and no cable was detected. The adapter has been disabled to conserve power.

The adapter was placed into MODE_A.

The adapter is using MODE_A of operation.

Device has been set for 10Base-T operation.

Device will auto negotiate the media type.

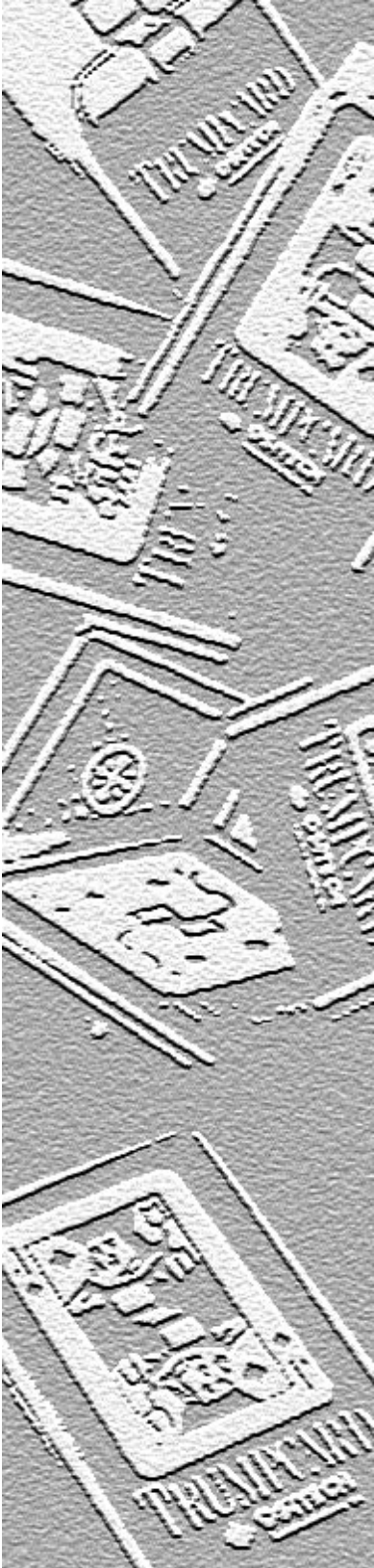
Device has been configured for Half Duplex.

Device has been configured for Full Duplex.

Device has successfully negotiated with link partner using N-Way.

Section Five

References



Running the Diagnostic Software

Ositech provides a self test diagnostic program to verify that all functions of the Jack of Hearts are working properly. The diagnostic program performs basic tests of the network and modem functions.

Before running the diagnostics software you require the following information:

- The number or orientation of the PC Card slots on the computer (i.e. 1, 2 or A, B).
- A free 64 byte range of I/O ports on 64 byte I/O boundary (i.e. 300, 340; not 310, or 320).
- An available interrupt from these possible values 3-5,7,9-12,14, or 15.
- A free 4K block of local memory

Before running the diagnostics software, ensure the following:

- The Jack of Hearts is installed properly in a PC Card slot.
- The Jack of Hearts is connected to your network via a direct-connect Ethernet cable.

To test the Jack of Hearts using the diagnostics software:

1 Boot up your computer and press F5 to start in DOS.

If possible do not load any drivers (i.e. bypass CONFIG.SYS and AUTOEXEC.BAT).

2 Insert the *JoH Diagnostic* disk into the 3.5" drive, and at the DOS prompt type `JOHDIAG.EXE` and press *Enter*.

3 Select the *Basic Adapter Tests* from the menu.

The second menu opens.

4 Enter the setting for the Socket, I/O port, interrupt and memory windows needed to enable the Jack of Hearts.

In most cases the default values shown below will work satisfactorily:

Socket	A
I/O Port	100
Interrupt	10
Memory Window	D000

5 Select *Start Basic Adapter Tests* to perform the tests. The test menu appears with a list of tests to be performed and the current test results.

All test results must indicate **OK** for successful verification of the Jack of Hearts.

Note: The basic adapter tests can fail due to an improper test environment. Verify that the Socket, I/O port, Interrupt and Memory Window are not in use by other hardware on the computer. If your computer is using a memory manager such as EMM386 make sure to exclude (X=nnnn-nnnn) the memory window selected or simply do not load the memory manager when running the diagnostic software.

Part Numbers

Jack of Hearts PC Card	
10BaseT Cellular	TR14456
10Base2 Cellular	TR14457
10BaseT Non-Cellular	TR14458
10Base2 Non-Cellular	TR14459
Jack of Hearts User's Guide	TR14062
QuickStart Reference Card	TR14060
Direct-connect Modem Cable	TR14030
Direct-connect Ethernet Cable	TR14022
10Base2 Media Access Module	TR14021
DPI Adapter	TR14023
RJ-45 Coupler	TR14015

Section Six

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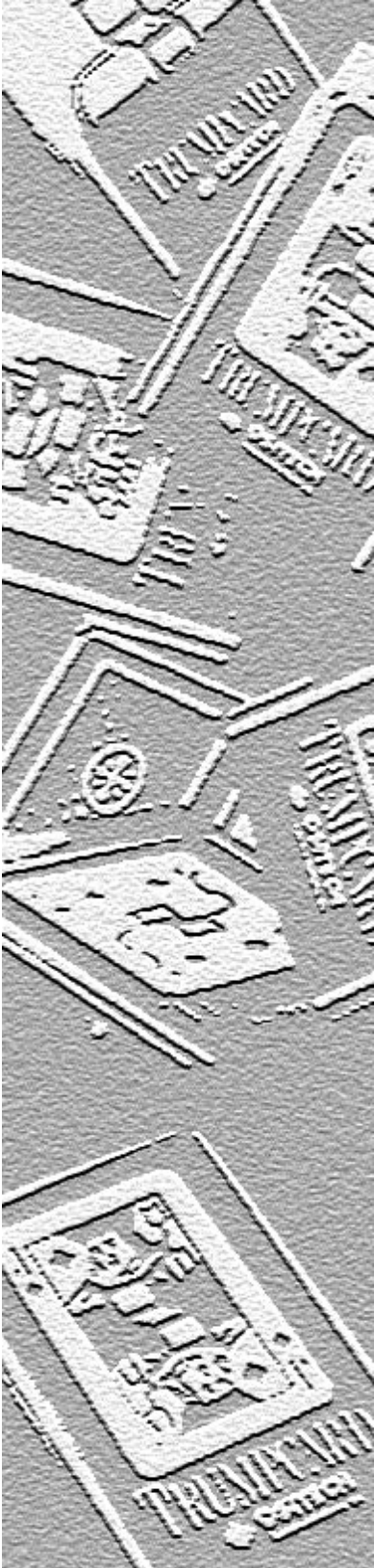

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Warranty

OSITECH COMMUNICATIONS INC. warrants each new OSITECH ***TRUMPCARD*** *sold by OSITECH to be free from defective material and workmanship. OSITECH agrees to remedy in accordance with terms specified below, any such defect which is disclosed under conditions of normal installation, use and service. To exercise this warranty the purchaser must deliver the unit intact for examination, with all transportation charges prepaid, to a servicing site designated by OSITECH.*

This warranty does not apply if the Product has been modified or subjected to misuse, neglect, or accident; or if the Product has been repaired or altered by an unauthorized service depot so that its performance or reliability has been impaired; or if the Product has had the serial number altered, effaced or removed; or if it has been damaged by accessories, peripherals, and other attachments not approved by OSITECH.

The specific terms of the warranty are as follows:

1. *The warranty period commences on the date the purchased unit is shipped to the purchaser by OSITECH, or an Authorized Reseller of OSITECH or by a transportation common carrier acting on OSITECH's behalf.*

2. *The warranty agreement only applies to the original purchaser. However when an Authorized Reseller of OSITECH resells the Products, pursuant to its rights hereunder, the said warranty shall apply to any persons or corporations which purchase such Products from the Reseller.*

3. *For a warranty period of five (5) years, OSITECH will be responsible for both material and labour required to effect all repairs under terms of the warranty agreement, providing the unit is returned to OSITECH as specified above.*

4. *OSITECH supports the equipment up to the time when the equipment is manufacturer discontinued. At such time, OSITECH will provide modules and accessories, upon request, necessary to maintain the equipment, for a period of two (2) years thereafter, subject to availability of material and components form OSITECH's suppliers.*

This warranty is in lieu of all other warranties, expressed or implied and no representative or person is authorized to assume for OSITECH any other liability in connection with the sale of the equipment.

IN NO EVENT SHALL OSITECH BE LIABLE, WHETHER IN CONTRACT OR IN TORT OR ON ANY OTHER BASIS, FOR ANY DAMAGES SUSTAINED BY THE CUSTOMER OR ANY OTHER PERSON ARISING FROM OR RELATED TO LOSS OF USE, FAILURE OR INTERRUPTION IN OPERATION OF ANY PRODUCTS, OR DELAY IN MAINTENANCE OR FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT OR SPECIAL DAMAGES OR LIABILITIES, OR FOR LOSS OF REVENUE, LOSS OF BUSINESS OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, LEASE, MAINTENANCE, USE, PERFORMANCE, FAILURE OR INTERRUPTION OF THE PRODUCTS.

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